

REMARKS

Applicant has now had an opportunity to carefully consider the final Office Action dated May 28, 2008. In the final Office Action the Examiner maintains rejections of claims and Applicant respectfully submits that the subject application should be found in condition for allowance based upon the following remarks.

Status of Claims

The subject application was originally filed with 19 claims. In a prior Amendment, Applicant cancelled claims 1-11, 13, 15, 16, 19 without prejudice and amended claims 12, 14, and 17. No amendments are made in this response. Claims 12, 14, 17 and 18 remain pending in the subject application.

Summary of Office Action

In the Office Action dated May 28, 2008, the Examiner:

- 1) Maintains as rejected claims 12, 17, and 18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,849,074 issued to Ficklinger et al. ("Ficklinger"); and
- 2) Adds new rejections of claims 12, 14, 17, and 18 under 35 U.S.C. § 102(b) as being anticipated over U.S. Patent No. 5,723,518 issued to Kahl et al.

35 U.S.C. § 102(b) Rejection of Claims 12, 17, and 18 Based on Ficklinger

Claim 12

Claim 12 was rejected under 35 U.S.C. § 102(b) as being anticipated by Ficklinger. For at least the following reasons, Applicant traverses this rejection.

Ficklinger fails to disclose or suggest a flow-through channel configured to permit a hydrodynamic liquid to flow therethrough, where the flow-through channel has an inlet, an outlet, and a cavitation chamber situated within the flow-through channel between the inlet and the outlet, as required by independent claim 12.

The Examiner states that the cavitation chamber is situated within the flow-through channel where the two fluid streams meet (item 16), and also, the cavitation chamber is defined by walls which define 16 and the exit orifice (item 28). However, Applicant's claim 12 recites that the cavitation chamber is between the inlet and the outlet of the flow-through channel.

Therefore, Ficklinger fails to disclose the exit orifice of the wall of the cavitation chamber as claimed. A prima facie rejection under 35 U.S.C. § 102(b) requires that all elements of the claim be anticipated by the reference.

Ficklinger also fails to disclose or suggest “a restriction wall in physical communication with the wall and the flow-through channel to prevent the hydrodynamic liquid from exiting the flow-through channel before entering the first and second orifices” as required by independent claim 12. Ficklinger lacks such a restriction wall because the "restriction wall" 43 of Ficklinger does not facilitate or encourage flow of the hydrodynamic liquid to enter the first and second orifices before it exits the flow-through channel. Ficklinger discloses the mixing of two different fluid streams which enter the mixing chamber 16 through orifices 30 and 32. (See Col. 2, lines 63 to Col. 3, lines 1-2.) The second fluid which enters the second cavity 30 is fluid from a source that is external to what the Examiner notes as the flow-through channel 16, and is not the hydrodynamic fluid. Therefore, Ficklinger does not disclose a restriction wall that would prevent a hydrodynamic liquid from exiting the flow-through channel before entering the first and second orifice because the hydrodynamic fluid of Ficklinger does not enter the first and second orifices.

For at least the foregoing reasons, the 35 U.S.C. § 102(b) rejection to independent claim 12 is unsupported by Ficklinger and should be withdrawn.

Claims 17 and 18

As mentioned above, claims 17 and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ficklinger. For at least the following reason, Applicant traverses this rejection.

Claim 17 recites a method comprising the step of "passing a hydrodynamic fluid through a flow-through channel having at least one wall." This hydrodynamic fluid is the "hydrodynamic liquid stream that can move along the A direction" and "[o]ne portion of the stream indicated by arrow B can pass around the front wall 135 and enter the first orifice 150 forming a liquid jet 165" and "the other portion of the liquid stream, indicated by arrow C, can pass around the front wall 135 and enter the second orifice 155 forming a liquid jet 170." (See Applicant's written description, Paragraph [0017] and FIG. 1 of U.S. Pub. 2004/0246815.) Claim 12 and the disclosure makes clear that the steps of introducing a first liquid stream that passes through a first

orifice in the wall and a second liquid stream that passes through a second opposing orifice is of the hydrodynamic fluid that passes through the flow-through channel.

Ficklinger discloses the mixing of two different fluids which enter the mixing chamber 16 as two different fluid streams through orifices 30 and 32. (See Col. 2, lines 63 to Col. 3, lines 1-2.) The second fluid which enters the second cavity 30 is fluid from a source that is external to what the Examiner notes as the flow-through channel 16. Ficklinger does not disclose a hydrodynamic fluid that is passed through a flow-through channel and enters two different orifices in a wall of the flow-through channel as recited in independent claim 17. Ficklinger also fails to disclose the step of “creating a high shear intensity vortex contact layer when the first liquid jet interacts with and penetrates the second liquid jet, thereby creating hydrodynamic cavitation” as required by claim 17.

For at least the foregoing reason, the 35 U.S.C. § 102(b) rejection to independent claim 17, and the claim that depends therefrom (i.e., claim 18), is unsupported by Ficklinger and should be withdrawn.

35 U.S.C. § 102(b) Rejection of Claims 12, 14, 17, and 18 Based on Kahl

Claims 12, 14, 17, and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kahl. For at least the following reasons, Applicant traverses this rejection.

Kahl fails to disclose or suggest that the first orifice has a diameter sufficiently smaller than the second orifice as recited in claim 12. The Examiner points to Col. 2, lines 46-58, however, there is no disclosure or indication, whatsoever, that the two orifice vary in size relative to one another. The Examiner also points to Col. 4, lines 26-31, however, the relative sizes of holes only relates to the different inserts, relative to one another, and not to the orifices of the opposing walls.

With respect to claim 17, Kahl does not disclose or suggest the creation of a second liquid jet that is larger in diameter than the first liquid jet from the opposing orifice. A prima facie rejection under 35 U.S.C. § 102(b) requires that all elements of the claim be anticipated by the reference.

For at least the foregoing reason, the 35 U.S.C. § 102(b) rejection to independent claims 12 and claim 14 which depends therefrom, and independent claim 17 and claim 18 which depends therefrom, is unsupported by Kahl and should be withdrawn.

Conclusion

In view of the remarks above and the amendments presented herein, it is believed that claims 12, 14, 17, and 18 are in condition for allowance and notice to such effect is respectfully requested. If the Examiner thinks a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at the phone number provided below.

If additional fees are due in connection with this Amendment, the Commissioner is authorized to charge Deposit Account No. 02-2051, identifying Docket No. 31561-57 (formerly 24961-92).

Respectfully submitted,

Dated: October 28 2008

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